

E23412

First Edition / March 2024

IN SEARCH OF INCREDIBLE



Service Manual

ASUS

COPYRIGHT INFORMATION

No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, except documentation kept by the purchaser for backup purposes, without the express written permission of ASUSTeK COMPUTER INC. ("ASUS").

ASUS PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ASUS, ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS AND THE LIKE), EVEN IF ASUS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES ARISING FROM ANY DEFECT OR ERROR IN THIS MANUAL OR PRODUCT.

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

SPECIFICATIONS AND INFORMATION CONTAINED IN THIS MANUAL ARE FURNISHED FOR INFORMATIONAL USE ONLY, AND ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE, AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY ASUS. ASUS ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS OR INACCURACIES THAT MAY APPEAR IN THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT.

Copyright © 2024 ASUSTeK COMPUTER INC. All Rights Reserved.

LIMITATION OF LIABILITY

Circumstances may arise where because of a default on ASUS' part or other liability, you are entitled to recover damages from ASUS. In each such instance, regardless of the basis on which you are entitled to claim damages from ASUS, ASUS is liable for no more than damages for bodily injury (including death) and damage to real property and tangible personal property; or any other actual and direct damages resulted from omission or failure of performing legal duties under this Warranty Statement, up to the listed contract price of each product.

ASUS will only be responsible for or indemnify you for loss, damages or claims based in contract, tort or infringement under this Warranty Statement.

This limit also applies to ASUS' suppliers and its reseller. It is the maximum for which ASUS, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS ASUS LIABLE FOR ANY OF THE FOLLOWING: (1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES; (2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR (3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF ASUS, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY.

SERVICE AND SUPPORT

Visit our multi-language website at <https://www.asus.com/support/>

Table of Contents

| | |
|----------------------------|----|
| Disclaimer | 4 |
| Guidelines..... | 4 |
| Repair Tooling List | 6 |
| ASUS AY2401 overview | 8 |
| Major components..... | 10 |
| Disassembly..... | 16 |
| Assembly | 22 |

Disclaimer

ASUS is not responsible for direct, indirect, intentional or unintentional damages resulting from improper installation and operation.

CAUTION: The product (including its functionality and water resistance), parts, and other properties may be damaged or compromised if you fail to adhere to the manual or to use genuine ASUS parts and correct tools. Please note that the product's water resistance is not guaranteed if it is repaired by someone without the necessary skills. For a thorough water resistance check, please visit an authorized ASUS Service Center.

Guidelines

Thoroughly review this chapter to gain insights into the various components of the AeroActive Cooler X (AY2401) and exercise caution, using the appropriate tools, before undertaking any service or repairs.

To ensure optimal service and support for the AeroActive Cooler X (AY2401), we have provided detailed information below for technicians from distributors and resellers to carry out comprehensive disassembly and assembly procedures. However, before initiating any procedures, it is crucial to read through the overview in this chapter, which includes component details, cautions, and recommended tools. This precautionary step is essential to avoid any unintended damages to the hardware.

Please consult the "Repair Tooling List" in this file for a comprehensive guide on the appropriate tools to be used for the service and repair of the AeroActive Cooler X (AY2401).

Please pay close attention to the following warning to prevent any damage to the AeroActive Cooler X (AY2401). Additionally, ensure that you select the appropriate tools as described in this section before performing any desired services.

Before undertaking any service or repair on the AeroActive Cooler X (AY2401), please follow the steps below:

- Ensure that the AeroActive Cooler X (AY2401) is powered down.
- Disconnect the AC plug from the AeroActive Cooler X (AY2401).
- Remove all rings, watches and any other metal objects from your hands.



- Always wear a grounding strap on your hand to protect the AeroActive Cooler X (AY2401) from static discharge.



Repair Tooling List

NOTE: The tools without part numbers can be purchased from electronics supply stores.



1. Thermal grease for ROG 8: TSP-RIC-D1060

Part Number:
16TT0-000K8000



2. Waterproof Oil

Part Number:
16TT0-000B8000



3. Heating Platform (110V)

Part Number:
20LT0-00075000



4. Thermal Grease Fixtures

Part Number:
20LT0-R00HX000



5. Plastic Blade



6. Brush



7. Phillips #00 Screwdriver



8. Plastic Cards



9. Tweezers (ESD)



10. Anti-Static Mat



11. ESD Gloves

ASUS AY2401 overview

Top view



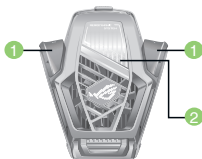
- 1 Power button cover
- 2 Cooler button
- 3 Unlock button

Front view



- 1 Cooler button
- 2 Aura light

Rear view

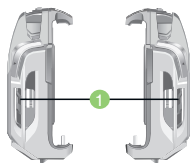


Bottom view



- 1 Kickstand
- 2 USB Type-C port
- 3 3.5mm headphone jack

Side view



- 1 Cooling fins

Major components

AY2401 DEVICE LABEL A



NOTE: This part is NOT reusable after disassembly.

AY2401 DEVICE LABEL B



NOTE: This part is NOT reusable after disassembly.

AY2401-1A BASE ASSY



ROG SEALED LABEL FOR PHONE



NOTE: This part is NOT reusable after disassembly.

AY2401 COOLING RUBBER



NOTE: This part is NOT reusable after disassembly.

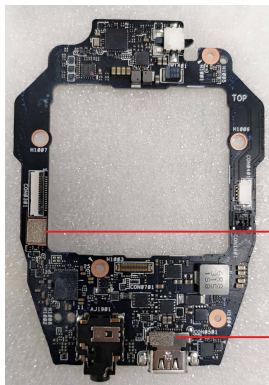
AY2401 KEY RUBBER



AY2401 USB RUBBER



AY2401 FAN FUNCTION_BD



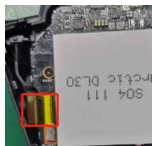
AY2201 FAN GASKET

AY2401 MB GASKET

AY2401 COOLING CHIP



AY2201 MB KAPTON



AY2401 MB KAPTON



**AY2401_USB_FPC R2.0
(NO EMI FILM)**



AY2401 SUB_BD



AY2401-1A HEATSINK



AY2401 COOLING FAN



AY2301 PCB CONDUCTIVE RING



NOTE: This part is NOT reusable after disassembly.

AY2401-1A FRAME ASSY



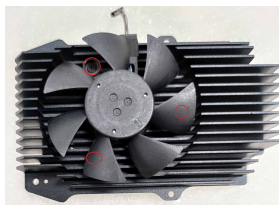
AY2401 FAN_LED_KEY_FPC



AY2401-1A COVER ASSY



**SCREW M1.4*8L (2.7,0.5)
(K) #0**



**SCREW M1.4*2.5L (2.8,0.4)
(K) #0**



Disassembly

Caution:

ASUS hereby provides a basic instruction for the disassembly of ASUS products, i.e. to remove components and materials that require selective treatments, which are defined by Annex II of the European Union (EU) Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC. This instruction is intended for the use of end-of-life recyclers or treatment facilities. Following is the list of Annex II of EU WEEE Directive 2002/96/EC.

- polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT),
- mercury containing components, such as switches or backlighting lamps,
- batteries,
- printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimeters,
- toner cartridges, liquid and pasty, as well as color toner,
- plastic containing brominated flame retardants,
- asbestos waste and components which contain asbestos,
- cathode ray tubes,
- chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
- gas discharge lamps,
- liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimeters and all those back-lighted with gas discharge lamps,
- external electric cables,

- components containing refractory ceramic fibers as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labelling of dangerous substances,
- components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation,
- electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume)

1. Use tweezers to remove the DEVICE LABEL A & DEVICE LABEL B.



NOTE: If the device label is difficult to remove, apply some alcohol.



2. Use tweezers to remove the USB rubber.



- Loosen the four M1.4*8L screws (circled) and detach the base assembly starting from the points indicated by the arrows.



- Remove the USB_FPC and SUB_BD from the main board.

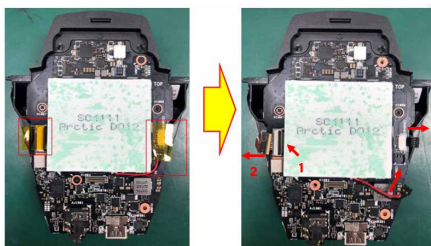


- Remove the two M1.4*2.5L screws and then remove the cover assembly.

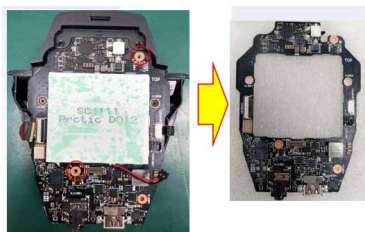


6. Remove the AY2201 MB KAPTON tape and unplug the KEY FPC from the main board.

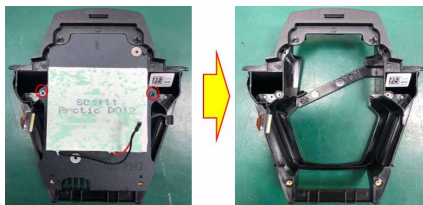
Remove the AY2401 MB KAPTON tape, unplug the FAN Cable and detach the Cooling Chip Cable connector from the main board.



7. Loosen the two M1.4*2.5L screws and remove the main board.



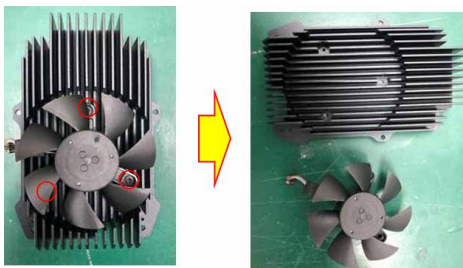
8. Loosen the two M1.4*2.5L screws and remove the FRAME ASSY.



9. Remove the FAN_KEY_LED_FPC from the FRAME ASSY if needed.



10. Loosen the three M1.4*8L screws and remove the FAN from the HEATSINK if needed.

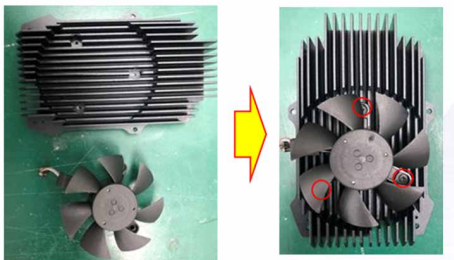


11. Use the Heating Platform to heat up the chip at 70°C for 2 minutes, then remove the cooling chip if needed.



Assembly

1. Assemble the FAN onto the HEATSINK and secure with three M1.4*8L screws.



Position the fan wire so that it rests inside the hook.



2. Assemble the FAN_KEY_LED_FPC onto the FRAME ASSY.



NOTE: Align the circled points with the alignment columns on the chassis.

3. Assemble the HEATSINK onto the FRAME ASSY and secure with two M1.4*2.5L screws.



NOTE: Paste two new PCB CONDUCTIVE RINGS when replacing a new HEATSINK.

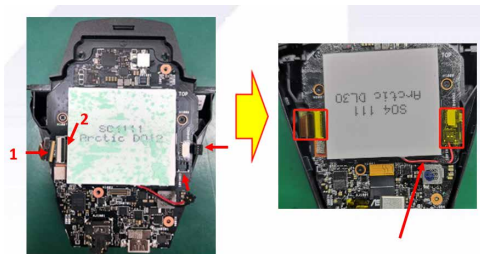


4. Assemble the MB onto the HEATSINK and secure with two M1.4*2.5L screws.



5. Connect the KEY FPC to the MB and secure the connector with AY2201 MB KAPTON tape.

Connect the FAN Cable and the Cooling Chip Cable to the MB and secure each connector with AY2401 MB KAPTON tape.



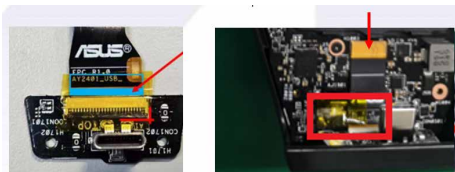
NOTE: Position the cable close to the cooling chip.

6. Install the bottom of the MB into the cover, then lay it flat to fully assemble it with the cover. Secure it with two M1.4*2.5L screws.



7. Connect the USB FPC to the SUB_BD and secure the connector with AY2401 MB KAPTON tape.

Install the SUB_BD into the bottom of the cover, attach the FPC to the MB, and paste an AY2401 MB KAPTON tape to the FPC as shown in the picture.



8. Remove the old thermal grease from the cooling chip and the back of the BASE ASSY. Apply new thermal grease, TSP-RIC-D1060, in the amount shown in the picture below, and evenly spread it over the cooling chip.



9. Thread the USB male connector through the hole at the bottom of the BASE ASSY, then snap the entire assembly onto the unit. Secure with four M1.4*8L screws and apply a new ROG SEALED LABEL FOR PHONE.



10. Assemble the USB RUBBER and then use a stick to press down on it to ensure it adheres properly.



11. Paste a new DEVICE LABEL A and a new DEVICE LABEL B.

